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The relationship between age and altruistic behaviour in elementary school children.

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THE RELATIONSHIP BETWEEN AGE AND ALTRUISTIC BEHAVIOUR IN ELEMENTARY SCHOOL CHILDREN

BY

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ABSTRACT

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The purpose of this study was to extend the analysis of the relationship between the age of children and altruistic behaviour by overcoming some of the limitations of previous experiments in this area--(1) change in incentive value; (2) paucity of measures of altruism, and (3) restricted age range.

Four groups of boys (aged 5-6, 7-8, 9-10, and 13-14 years) were used as subjects in this experiment. Three measures of altruistic behaviour were used--sacrificing of free time to help poor children, helping the adult experimenter by picking up pencils he had dropped, and donating of candies to peers. An attempt was made to control for the incentive value of candy for children at different ages. The four age groups were matched on the basis of socio-economic status and I. Q.

On the basis of previous research, one hypothesis was made: that altruistic behaviour would increase between the ages of 5 and 10. Analysis of the data supported the hypothesis by showing that there was an increase in altruistic behaviour between the ages of 5 and 10 on all the measures employed. However, it was found that between the ages of 9-10 and 13-14 in the Time Condition there was a decrease in altruistic behaviour, in the Pencil Condition there was a leveling off, and in the Candy Condition there was an increase. Trend analyses showed that there was a significant linear increase in the donation of candy with age, whereas there was a marginally significant quadratic trend with regard to the volunteering of free time, with the maximum being at the age of 9-10.

The study was interpreted as supporting previous research which showed an increase in altruistic behaviour between the ages of 4 and 10. The results pertaining to the age-altruism function between the ages of 9-10 and13-14 indicated that caution is necessary in the interpretation of previous studies of this age range based on only one measure of altruistic behaviour.

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TABLE OF CONTENTS

		Page
ACKNOWLEDGEMENTS		iii
LIST OF TABLES		v
LIST OF FIGURES		vi
Chapter		
I	INTRODUCTION	1
II	METHOD	18
III	RESULTS	28
IV	DISCUSSION	38
Appendix		
A	Object Preference Form	45
B	Mean Candy Preference Scores, Social Class and I.Q. of the Four Age Groups	46
C	Analysis of Variance of Candy Preference Scores	47
D	Raw Data by Age Group	48
E	Comparisons Between Means for the Candy Condition	52
F	Comparisons Between Means for the Time Condition	53
REFERENCES		54
VITA AUCTORIS		60

LIST OF TABLES

Table		Page
1	Studies Showing a Significant Increase in Altruistic Behaviour with Increasing Age.....	8
2	Studies Failing to Show a Significant Increase in Altruistic Behaviour with Increasing Age.....	10
3	Altruistic Behaviour of the Four Age Groups Across the Three Conditions...	29
4	Analysis of Variance of Altruistic Behaviour as Measured by 2 Conditions (Time and Candy) across Four Age Groups.....	31
5	Analysis of Variance of Altruistic Behaviour as Measured by 2 Conditions (Time and Candy) across Three Age Groups.....	33
6	Summary of Chi Squares on Help in the Pencil Condition.....	35
7	Correlations for each Age Group Between the Three Measures of Altruistic Behaviour.....	37

LIST OF FIGURES

Figure		Page
1	Total Altruistic Behaviour in the Three Conditions by Age Groups.....	30

CHAPTER I

INTRODUCTION

Interest in behavioural studies of altruistic acts has increased in recent years. In their review of experimental studies of altruistic behaviour by children, Bryan and London (1970) emphasized two characteristics of the studies: first, that they are concerned with the elicitation of altruistic acts rather than with the learning of altruistic attitudes; and second, that they concern giving and sharing rather than emergency or rescue activity.[1]

Many studies have examined the relationship between the age of children and the amount of altruistic behaviour they display. The purpose of the present study is to extend the analysis of this relationship by attempting to overcome several of the limitations of previous research.

In this chapter the problem of defining altruism and some theories of altruistic behaviour first are discussed, and then empirical research is reviewed and some of its problems pointed out. Finally a statement of the overall problem is made and a hypothesis formulated.

[1] A few studies (Staub, 1970; Staub & Feagens, 1969) have examined the behaviour of children in an emergency situation.

Background and Theoretical Considerations

Two recent survey articles (Bryan & London, 1970; Krebs, 1970) have failed to formulate a clear theoretical definition of altruism or helping behaviour. Some definitions stress the motivational aspect of altruism. For example, Aronfreed (1970) defines altruism as a dispositional component of behaviour which is controlled by anticipation of its consequences for another individual. According to Aronfreed, empathy is essential for altruism. On the other hand, Latané and Darley (1970) conceive of altruism as any behaviour which benefits another in need, regardless of the helper's motives.

Primarily because of the difficulty in ascertaining the motivation behind actions, most researchers ignore the definitional problem and merely operationalize altruistic behaviour as such acts as generous giving, sharing, self-sacrificing, and help-giving.

Generally, altruistic behaviour is considered to be the opposite of selfish, egotistical behaviour. This point of view conceives helping behaviour as arising from general emotional health and adjustment. Ironically, however, some authors have seen the origins of altruism in selfishness or guilt-neuroticism (Darlington & Macker, 1966; Freud, 1937; Rosenhan & White, 1967).

Two recent literature reviews (Bryan & London, 1970; Krebs, 1970) indicate that nursery aged children give or share very little and that altruistic behaviour tends to increase between the ages of 4 and 10. A number of plausible explanations, not necessarily mutually exclusive, can be offered for this increase

in altruism with age. These explanations will be reviewed under two headings: (1) theories involving social learning and (2) theories which attempt to relate changes in moral behaviour to changes in moral judgement.

The importance of vicarious learning has been emphasized by Bandura and his associates (e.g. Bandura & McDonald, 1963; Bandura & Walters, 1963). They have demonstrated that children learn novel responses, including moral judgements, more effectively by observing the performance of those responses by models than by simple reinforcing procedures. It would seem that the frequency of observing altruistic models increases with age, thus accounting for the increase in altruistic behaviour.

A number of theoretical models have attempted to explain altruistic behaviour in terms of the learning of norms. Some of the norms that have been postulated are reciprocity (Gouldner, 1960), social responsibility (Berkowitz & Daniels, 1963), indebtedness (Greenberg, 1968), and deservedness (Staub, 1968). The normative explanation of altruistic behaviour has been criticized for overlooking situational variables (Darley & Latané, 1970; Krebs, 1970). Nevertheless it retains some validity as a partial explanation of the occurence of altruistic behaviour and, as such, the learning of norms through repeated exposure over time has been suggested to account for the increase of altruism with age (Staub, 1970). Closely related to this learning of norms is the increasing expectation by

adults that children should act more altruistically as they grow older (Staub, 1970).

Those who take a more behavioural social learning approach (e.g., Aronfreed, 1968; Rosenhan, 1969) argue that the acquisition of altruistic responses requires a history of reinforcement and the development of a self-reward mechanism.

Other theorists have attempted to link changes in the moral behaviour of children (including altruistic behaviour which is considered as moral or ethical activity) with developmental changes in their ability to make moral judgements. Piaget (1932) suggests that the development of moral judgement in children follows an orderly pattern, going through a number of stages. According to Piaget, while this development is strongly affected by adult and peer influences and constraints, it also depends on changes in the child's cognitive structure, which progresses through a number of stages. In other words, the child's stages of moral development are thought to correspond with the stages of his cognitive development. Lee (1971) tested Piaget's hypothesis and found empirical support for it. Consistent with the view of Piaget some authors (Staub, 1970; Ugurel-Semin, 1952;) have suggested that a young child may not act altruistically simply because he lacks the cognitive and moral capability to do so, whereas an older child may act altruistically because his cognitive and moral development are sufficiently advanced to enable him to do so.

Kohlberg (1964) has extended Piaget's notion of stages in moral development. Kohlberg conceives of three primary stages in the development of moral judgement:

(1) Moral judgements are based on the hedonistic consequences of an act (i.e., reward or punishment from an external source).

(2) Moral judgements are made as a function of the approval or disapproval of others.

(3) Moral judgements are made as a function of internal standards or principles.

Bryan and London suggest that between the ages of 4 and 10 children shift from Stage (1) to Stage (2), that is, there is a change from making moral judgements on the basis of egotistic needs to making moral judgements on the basis of the need for social approval (the beginning of the "good boy morality"). This change from Stage (1) to (2) would explain why children give or share very little at 4-5 years of age, but become increasingly altruistic as they grow older.

Flavell (1968) and Selman (1971) studied the relation between role taking and the development of moral judgement in children and showed that the understanding of the reciprocal nature of interpersonal relations is necessary if conventional moral thought is to develop. Staub (1970) concurs with this finding, stressing the ability to empathize with another and the capacity for role taking as necessary components of altruism.

All of the above theories can help explain the increase in altruistic behaviour which seems to occur between 4 and 10. Empirical findings do not necessarily lend support to any one theory more than to others. In the following section, a detailed review of previous research is presented.

Previous Research with Children

Several studies (reviewed by Bryan & London, 1970; Krebs, 1970) have been concerned with the relationship between age and altruistic behaviour. According to Krebs (1970), it is difficult to compare these studies and to come to general conclusions for three reasons: (1) the diversity of the experimental situations used, (2) in some cases the dependent measure was the amount of some commodity given or shared, and in other cases it was the proportion of altruistic subjects, and (3) it is difficult to devise experimental situations or tasks equally relevant to children of widely differing ages. However, Krebs (1970) and Bryan and London (1970) agree that two generalizations can be made from these studies. First, nursery school children (aged 4-5) give or share very little. Whether this is selfishness (conscious unwillingness to share or give) or ignorance of a norm of giving or sharing has not been clearly established. Secondly, giving, sharing, and willingness to help increases beyond nursery school age at least to the age of 9 or 10.

Table 1 summarizes nine studies which support the view that an increase in altruistic behaviour occurs between the

ages of 4 and 10, although in most studies the age span was only three or four years.

However, some confusion exists regarding the nature of the age-altruism function after the age of 10. As Table 1 indicates, Ugurel-Semin (1952) found almost total help by all subjects from 9 to 16. Staub and Feagens (1969) and Staub (1970), on the other hand, found that 11 and 12 year olds were less likely to help another child in distress than 9 and 10 year olds; whereas Schneider, Green, Mockus and Veighy (1971) found that people under 20 (mean age 14) tend to help more than people over 20 when moderate physical assistance was required in a mild emergency situation.

Table 2 summarizes the five studies which have failed to find a significant increase in altruistic behaviour with age. Of the five studies it should be noted that in three studies (Rosenhan & White, 1967; Staub, 1968; White, 1968) the age range was only 2 years, and in the case of Grusec and Skubiski, 3 years. These very limited time spans would minimize the possibility of finding significant differences. None of these five studies reported any decrease in altruism with increased age.

TABLE 1

Studies Showing a Significant Increase in Altruistic Behaviour with Increasing Age.

Author and date	Subjects			Dependent variables
	Age	Sex	N	
Wright (1942)[a]	8		36	Sharing toys with peer.
	11		36	
Ugurel-Semin (1952)	4-6	M/F	18	Sharing peanuts with peer.
	6-7	M/F	23	
	7-8	M/F	44	
	8-9	M/F	43	
	9-10	M/F	45	
	10-11	M/F	41	
	11-12	M/F	28	
Handlon & Gross (1958)	4-6	M/F	18	Giving jointly earned pennies or seals to a peer.
	9-10	M/F	25	
	10-11	M/F	25	
	11-12	M/F	25	
Midlarsky & Bryan (1967)	6-7	F	16	Donating M&M candies to needy children.
	7-8	F	16	
	8-9	F	16	
	9-10	F	16	

TABLE 1 continued

Author and date	Subjects			Dependent variables
	Age	Sex	N	
Bryan & Walbek (1970)				
Experiment 1	8,9,10	M/F	91	Donating one cent gift
" 2	8,9	M/F	186	certificates to charity.
" 3	8,9	M/F	132	
Harris (1968)	9,10	M/F	168	Giving poker chips to peers.
Walbek (1969)	7-8	M		Donating anonymously
	11-12	M		to the March of Dimes.
Staub & Feagen (1969)[b]	4-6	M/F	16	Helping a peer in
	6-7	M/F	16	distress.
	7-8	M/F	16	
	9-10	M/F	16	
	11-12	M/F	16	
Staub (1970)[ab]	4-12	M/F	132	Helping a peer in distress.

Note. -- adapted from Krebs, 1970, p. 289.

[a]Complete details not reported.

[b]found that help decreased from 9 and 10 to 11 and 12 after increasing gradually from 4 to 10.

TABLE 2

Studies Failing to Show a Significant Increase in Altruistic Behaviour with Increasing Age.

Author and date	Subjects			Dependent variables
	Age	Sex	N	
Hartshorne, May & Maller (1929)[a]				Helping an unknown other.
Floyd (1964)	4-5	M/F	32	Giving trinkets to
	6-9	M/F	60	partner.
Grusec & Skubiski (in press)	8-10	M/F	80	Donating marbles to orphans.
Rosenhan & White (1967)	9-10	M/F	65	Donating one cent gift certificates to orphans.
White (1967)	9-10	M/F	210	Donating one cent gift certificates to orphans.
Staub (1968)	9	M/F	196	Giving M&M candies to
	10	M/F		peer.

[a]Complete details not available since the present writer did not have access to Hartshorne, May & Maller, Studies in service and self-control (1929).

Midlarsky & Bryan

Generally, studies which involved altruistic models (Grusec & Skubiski, in press; Rosenhan & White, 1967; White, 1967) have failed to show age-dependent increases in altruism. Krebs (1970) suggests that perhaps the reason for this is that younger children are more susceptible than older children to the influence of models.

Generally, then, research indicates that altruistic behaviour among children increases with age, at least between the ages of 4 and 10. However, certain limitations in previous research, which shall be considered next, make caution necessary in accepting these findings.

Methodological Limitations of Previous Research

Change in incentive value. One of the problems with most studies correlating age with altruism has been that, with two exceptions (Midlarsky & Bryan, 1967; Staub, 1968), there has been no attempt to control for the possibility that the results reflect changes in the incentive value of the object which is donated or shared. That is, perhaps 10 year old children donate more candies than 4 year olds because the candies are valued less by the 10 year old children. Thus, greater donation by 10 year olds would reflect lower incentive value of candies rather than greater altruism.

Handlon and Gross (1958) and Midlarsky and Bryan (1967) recognized this problem of differing incentive values and approached it in different ways. Handlon and Gross (1958) used seals as an object of donation by younger children and pennies

for older children. However, they failed to check if seals had a value for the younger children equivalent to the value of pennies for the older children. Midlarsky and Bryan (1967) controlled for differing incentive values by asking each subject to indicate how much he liked M&M candies on a four point scale. No significant differences in preferences were found, therefore they concluded that differing incentive values could not have accounted for the increase in donation with age. However, the simple nature of this rating scale makes it a limited means of checking for incentive differences. In any case, both of these studies found an increase in altruism with age.

Bond (1968) employed what appears to be an improvement over the other means of handling the incentive value problem. Although not concerned with age differences, Bond used an object preference form to check for differences in the incentive value of M&M candies for fourth grade boys and girls. Subjects were asked to indicate their preferences between a five cent box of M&M candies and four other five cent items.

M&M candies have been most frequently used in experiments on altruistic behaviour in children. The three studies which attempted to control for changes in incentive values (Bond, 1968; Midlarsky & Bryan, 1967; Staub, 1968) used M&M candies. Whatever the objects used, it seems imperative in future studies to successfully control against differing incentive values across age groups.

Paucity of measures of altruism. As previously noted, altruism is a somewhat vague, general, diversified concept. Bond (1968) concluded that as a personality trait it is multi-dimensional, reflecting both social responsibility and guilt-neuroticism. And while altruistic behaviour can be operationalized in a variety of ways, in all but two of the studies done so far, there has been only one measure of altruism. There has been little recognition of the fact that different types of altruistic behaviour vary greatly in nature and may develop at quite different rates in children. Certainly an emergency situation calls for a response quite different from the simple sharing of candies. Just the fact that in studies of generosity help is solicited and in emergencies it is not makes the two quite different. To date no study has been reported which has measured both generosity and help-giving in an emergency.

In addition, the identity of the recipient of altruistic behaviour, whether child or adult, friend or stranger, needy or not, may have a significant effect on the amount of help elicited. In a study by Midlarsky and Bryan (1967) two behavioural measures of altruism were used -- donation of M&Ms to needy children and the number of times the subject sacrificed an M&M candy to please the experimenter. The recipient of help seemed to have a differential effect on altruism -- with the first measure there was a consistent increase in donation with age; in the second case the increase in self-

sacrifice was not consistently correlated with an increase in age.

Bond (1968), although not studying age differences, used two measures: the amount of earned M&M candy donated to deprived children and teacher ratings of the altruism of subjects. Teacher ratings correlated with the behavioural measure of altruism in girls, but not with boys.

Given the general and diverse nature of altruism, it would seem that a more accurate estimate of the development of altruistic behaviour in children could be achieved by the use of several different measures of altruism.

Restricted age range. The age range involved in all of the studies mentioned, with few exceptions, has been between 4 and 10 or less, with many studies spanning only two or three years. Ugurel-Semin (1952) studied children between the ages of 4 and 16, but sample sizes below the age of 7 were small, and such variables as social class were not controlled. Staub and Feagens (1969) and Staub (1970) found an increase in helping a child in distress from age 4 to 10, but a decrease at age 11 and 12 which they attributed to increased concern about peer evaluation in older children. Schneider et al. (1971) found a tendency for people under 20 to help more than those over 20. It is obvious that much confusion exists about the development of altruism after the age of 10. A study with a more extended age range is necessary in order to obtain an overall picture of the development of altruism as children move into

the adolescent years.

A Statement of the Problem

The purpose of the present study was to extend the analysis of the relationship between age and altruism in children by attempting to overcome some of the limitations of previous research. Previous research, the great majority of which defined altruistic behaviour according to some measure of generosity, generally indicates that there is an increase in altruism in the first decade of life. But what is the nature of the relationship between age and altruism when different measures of altruism are used? Does the increase in altruism from 4 to 10 generalize to types of altruism other than measures of generosity? Little is known about the nature of the relationship between age and altruism in children beyond 10 years of age. Past research is simply too inconsistent to draw any general conclusions. Ugurel-Semin (1952) seemed to find almost total generosity from ages 9 to 16. But this may very well have been due to either the reduced incentive value of peanuts for children at those ages or a ceiling effect. Staub (1970) found a decrease from age 10 to 11 and 12, but he was measuring help in an emergency situation. Will this effect attributed by Staub to greater peer inhibition at 11 and 12 generalize to non-emergency altruistic situations such as sharing? Or will children at 13 and 14 begin to exhibit more adherence to internal standards of justice and charity characteristic of the later stages of moral development as Piaget and Kohlberg theorize?

It appeared that the only way satisfactory answers could be found to all of these questions was to extend the scope of previous research. What seemed most necessary was the use of more behavioural measures and that the age range be extended.

In the present study the main independent variable was age, which ranged from 5 to 14. Three behavioural measures of altruism and three different recipients of altruism were used: (1) sacrifice of free time to work for needy children; (2) helping the adult experimenter in a mild emergency situation by picking up pencils he had dropped; (3) donation of chocolate bars to peers.

It was hoped that the three behavioural measures would give a more accurate picture of the development of the many-faceted behaviour which we call altruism. The sacrifice of free time apparently had not been previously used as a measure of altruism. Five cent chocolate bars were used instead of individual M&M candies since their sacrifice should represent a more realistic test of altruism. Help in a mild emergency situation was used in order to reflect that aspect of altruism tested by Staub (1970) with children and in so many studies of altruism in adults.

It was hoped that some of the problems resulting from the different incentive value of objects at such widely different ages would be overcome by having three measures, two of which (time and help) are not directly material in nature. In addition, following Bond (1968), an attempt was made to control

for differing incentive value of candy bars through an object preference form.

Hypothesis

While recognizing the limitations of previous research, the following hypothesis seemed justified: Altruistic behaviour by children increases from age 5 to age 10.

The inconsistencies of previous research made further predictions very difficult. The study simply investigated, therefore, what, if any, change occurs in altruistic behaviour between the ages of 10 and 14.

CHAPTER II

METHOD

Preliminary Data Collection

Two days before the actual experiment began a male assistant to the experimenter went to the school and administered the Object Preference Form[2] to approximately 35 boys from each of the following age groups: 5-6 years, 7-8 years, 9-10 years and 13-14 years. Except for 5 and 6 year old children, the Object Preference Form was administered to groups ranging in size from 10 to 15. To each group of boys the assistant said:

> Good morning boys. My name is Don Abrash. It's very nice to be with you. I would like to ask your help this morning. I am doing a study on what boys like most. First I have to pass out a sheet of paper to each of you. Please don't mark it until I explain it to you.

After distributing the Object Preference Form to the children the assistant instructed them to write in the space provided their name, age, grade and the name of their teacher. Then he explained:

> Now I have here five things.

[2]The Object Preference Form (see Appendix A) was used to measure the incentive value of candies.

> I bought each of them for 10 cents---a plastic ruler, 5 balloons, a bag of 20 marbles, a 10 cent chocolate bar and a plastic whistle. See them.

The assistant then held up each item in the reverse order of naming them initially and called each by name. Then he said:

> If you look at the sheet of paper you have, you will see the name of each of these five things on it with a square box beside it. What I want you to do is just to decide which of these five things you like most and mark 1 in the box beside that thing. Do you like the _____ best, or the _____ best, or the _____ best, or the _____ best, or the _____ best (randomizing the order with each successive group). Whichever one you like best, mark a 1 in the box beside it. Remember, all five cost 10 cents each. Mark a 2 in the box beside your second choice and so forth, to your fifth choice.

The assistant then asked the boys to fill in the Ofject Preference Form, being careful that each child completed his Form on his own. When all the children had finished answering the Forms, they were collected, and the assistant thanked the children for their help and dismissed them.

For the kindergarten and grade one boys, each child was tested individually. The child was seated across the table from the assistant. The five objects had been placed in a row on the table. (The assistant changed the order of the objects from child to child.) The assistant introduced himself in the same way as he did for the older children and then said:

> See these five things. I want you to tell me which one of them you like most.

The assistant recorded the child's choice, removed the object, and asked which of the remaining things were preferred, and so forth until one object remained. The child's name, age, grade,

and his teacher's name were recorded. Then the child was dismissed.

Subjects

The subjects were 100 Caucasian boys enrolled in a separate elementary school located in Windsor, Ontario. There were 25 boys from each of the following age groups: 5-6 years old, 7-8 years old, 9-10 years old and 13-14 years old. In addition to sex, the subjects were selected on the basis of the data collected in the preliminary phase of the study and data from school records. Within each age group there were 13 subjects of the younger age and 12 of the older age. The groups of 25 boys also were selected so that the following three factors were matched as closely as possible: (1) preference for candy bars, (2) social class, and (3) I.Q. (see Appendix B). Each child's relative preference for candy bars was measured by the ranking he gave the chocolate bar on the Object Preference Form. The I. Q. of each subject (based on the Lorge-Thorndike Form A) and the occupation of his father (or mother if the father was absent from the home) were obtained from school files. On the basis of the parent's occupation, the socio-economic status of each subject was estimated using the Duncan index (Duncan, 1961).

As Appendix B indicates, the four age groups were closely matched on I. Q. and social class. However, there appears to be a tendency for the incentive value of candy to increase with age. A single factor analysis of variance (Winer, 1962, p. 71)

indicated that age was not a significant determinant of incentive value, although the age effect was marginally significant (see Appendix C).

Procedure

The experimenter was a 32 year old male. He was assisted by a 23 year old female. The experiment lasted 3 days. It took place in two rooms at the subjects' school. The experiment began with the older children and worked downward according to age. It was arranged so that all subjects from one class were run in succession in order to reduce the opportunity for them to discuss the nature of the experiment. In addition, teachers were requested to discourage subjects from talking about the experiment.

The experiment began by having the school's principal introduce the female assistant to the class in the following way:

> Boys and girls, we have a visitor today. This is Miss Jackson from the University of Windsor. Miss Jackson is working on a project and she would like to speak to you about it.

Then the female assistant said:

> Thank you, Sister Mary, and Good Morning boys and girls. I'm very happy to be with you here at St. Clare's School today. As Sister Mary said, I am helping Mr. Green who is also from the University of Windsor. We want to ask some of you to help us with this project. I want to bring some of you to see Mr. Green who will talk to you for a little while about the project. Right now we just want to see some of the boys. Now I want to bring _____ (first boy) to see Mr. Green.

Then the assistant accompanied the subject to a room in which the experimenter was sitting behind a table. On the way to the room she asked the boy such questions as how many brothers and sisters he had, did he like hockey or baseball, who his favorite players were, and so forth. She escorted the boy into the room and said:

> Mr. Green I would like you to meet _____. _____ this is Mr. Green. Sit down and Mr. Green will tell you about the project.

The assistant then left the room to bring the next subject to the experimental room.

The experimenter then said to the subject:

> How are you today? You're in grade ___ aren't you? As Miss Jackson told you, my name is Mr. Green, and I'm from the University of Windsor. Do you know where that is? You're probably wondering why I wanted to see you. Well you see, next week we are starting a project to help poor children in Windsor. Have you heard about the project from the other boys? (If the answer was yes, the experimenter inquired further to determine whether the subject's knowledge of the experiment might bias his responses to it. If the answer was no--)[3] Well, one of the things we're doing is putting together some books for poor kids to use in school. We're asking kids from different schools in Windsor to help put the books together.

The experimenter walked over to the side of the room where there were ten stacks of printed pages and two stacks of covers. He said:

> Do you see these pages? Well they all have to be put together like this.

The experimenter assembled the ten pages.

> You see, it takes a lot of time to do this--and each book has a lot more pages than this. And we have an awful lot of books to put together.

[3]A few subjects said that they had heard there was a project. Further questioning indicated they had no further knowledge.

The experimenter returned to his chair and said:

> Next week we will begin working during the last 15 minutes of lunch hours here at the St. Clare's School. I was wondering if you would be interested in helping us put these books together for the poor kids. There are lots of kids who would help if you don't want to. Do you think you would like to help --remember you don't have to. (If the answer was yes) Very well you can work for the last 15 minutes of a lunch hour 1, 2, 3, 4, or 5 days next week. It would mean that you would have to come back to school 15 minutes early. How many days do you think you would like to help? Let me write down your name.

At this point the experimenter searched his pockets for a pen and not finding one, reached for and picked up an unsharpened pencil from a stack of six unsharpened pencils near the edge of the table. He stood up, saying:

> Excuse me, I'll have to sharpen this pencil.

As he stood up, the experimenter accidentally knocked the remaining five pencils on the floor. The experimenter shrugged, paused a second, then went to the other side of the room where he looked in a brief case, carefully observing the subject's response to the pencil situation. Finding a sharpened pencil he said:

> Oh, here's one that's already sharpened. Now what is your name? How old are you? What street do you live on? And you're in Grade ___ ?

The experimenter recorded the answers to these questions. If after recording these answers the subject had made no attempt to pick up the pencils, the experimenter slowly picked up the pencil farthest from the boy. If the boy did not help, the experimenter picked up the rest of the pencils.

The experimenter then said:

> Thanks for coming in to see me. I'll be in touch with you next week. I think Miss Jackson wants to see you for a minute.

The experimenter led the boy out of the room where the assistant was waiting with the next subject. The experimenter said:

> Oh, just one minute please.

He left the two boys with the assistant, returned to the room, recorded the subject's response to the pencil emergency, and prepared for the next subject. After about 10 seconds the assistant brought the next subject into the experimental room.

After bringing the second subject into the experimental room, the assistant said to the first subject:

> We want to give you something to thank you for coming to see Mr. Green. Please come into this room (taking the first subject into the second experimental room). See these five candy bars (pointing to five five-cent boxes of Smarties placed on a table). You may have them if you wish. The only thing is that we have a problem, and we aren't sure what to do about it. Mr. Green won't be able to see all of the children in the school, so some of the children won't be able to have any candy. So, if you want to, you can give some of your candy to the other children.
>
> I'm going to go out of the room. Now, if you want to give some of your candy to the other kids--you don't have to, if you don't want to--put them in this box. (A large, orange coloured cardboard box had been placed in the room. On top of the box there was an opening just large enough to allow a five cent box of Smarties to be dropped into the box. However, it was impossible for the subject to know how many candies were already in the orange box.) The ones you want to keep for yourself, if you want to keep some for yourself, put in this bag, which I will write your name and grade on (the assistant writes the subject's name and grade on the bag) and bring the bag to me. No one will look to find out what you did, so I will staple the bag for you when you bring it to me outside. I will put the bag in that box there (a large open

> cardboard box placed on the floor), and next week, when when we give the candies to everyone, we will give you your bag with the candies in it. I'm sorry I can't give them to you now, but this is the way Mr. Green has decided to do it. I promise you will get your candies next week.
>
> Now I'm going outside of the room. If you want to give some candies to the other kids put them in the box; you don't have to, if you don't want to. If you want to keep some for yourself, put them into this bag and bring it to me.

The assistant then left the room and waited for the subject. After the subject had come out of the room and the assistant had put the bag in the box, the assistant escorted him back to his room. On the way the assistant asked:

> Did you tell Mr. Green you would work with him on the project? Well, Mr. Green will talk more to you about it, when he returns next week to start the project. Please don't tell the other children about your talk with Mr. Green or about the candies. Mr. Green would like to talk to them himself. Thank You.

After all the boys in a particular class had participated in the experiment, the assistant went into the classroom and said:

> I want to thank all the boys who helped us today. This is all the boys Mr. Green can see today, but he will be back next week.

The week after the experiment, the experimenter returned to the school. He returned to each subject his bag and, also, gave one chocolate bar to every other child in the school. The experimenter explained that due to unfortunate circumstances, the project for poor children would not be carried out that week. He praised the children for their willingness to help and told them they had all been very generous.

At a staff meeting the purpose of the study was explained to the teachers, and they were thanked for their co-operation.

Statistical Analysis

There were four age groups and three experimental conditions. In the Time Condition the number of free time periods (0-5) volunteered by a subject served as the dependent measure. In the Pencil Condition help or no help constituted the dependent measure. In the Candy Condition the number of boxes of candy (0-5) donated by a subject was the dependent measure.

Because the data from the Pencil Condition were dichotomous in nature, they were analyzed by means of chi squares (Siegel, 1956, p. 104). The data from the Time and Candy Conditions were analyzed by means of a 2 X 4 (Condition X Age) analysis of variance (Winer, 1962, p. 233). Individual comparisons of treatment means were computed using the Newman-Keuls test (Winer, 1962, p. 238).

Since the main focus of interest in this study was the relationship between age and altruistic behaviour, tests for trend across age groups were in order. However, according to Winer (1962, p. 72), in order for orthogonal tests for trend to be employed, treatment classes should form equal steps along an ordered scale. Therefore, a 2 X 3 (Condition X Age) analysis of variance also was computed using 5-6, 9-10, and 13-14 year old subjects. Orthogonal trend analyses then were computed (Winer, 1962, p. 273).

In order to check for consistency of different kinds of altruistic behaviour at different age levels a Pearson product-

moment correlation co-efficient was computed for each age group between the number of five cent boxes of candy donated and the number of time periods volunteered (Byrne, 1966, p. 157). In addition, point biserial correlations were computed for each age group between the Time Condition and the Pencil Condition and between the Pencil Condition and the Candy Condition (McNemar, 1962, p. 192).

The .05 level of significance was used in this experiment.

CHAPTER III

RESULTS[4]

The helping data are summarized in Table 3 and graphically represented in Figure 1[5]. Inspection of Table 3 and Figure 1 indicates that altruistic behaviour, based on all three measures, appears to increase between the ages of 5-6 and 9-10. However, between the ages of 9-10 and 13-14, different patterns emerge, depending on the type of altruistic behaviour. While the number of boxes of candy that was donated continued to rise between 9-10 and 13-14, the amount of time that was volunteered dropped to the same level as for the 5-6 year old group. On the other hand, no change appeared to occur in the Pencil Condition with the number of subjects who picked up the pencils levelling off.

The 2 X 4 analysis of variance on helping data is summarized in Table 4. The independent variables were Condition (Time and Candy) and Age. It seemed appropriate to combine the two measures of altruistic behaviour (Time and Candy) in a 2 X 4 analysis since each subject could volunteer from 0 to 5 free time periods and also could donate from 0 to 5 candy bars. Table 4 shows that Age, Condition, and the interaction between Age and Condition were significant factors.

[4]All of the raw data for the experiment are presented in Appendix D.

[5]In Figure 1, for purposes of illustration, the number of subjects in each group who picked up the pencils was multiplied by 5.

TABLE 3

Altruistic Behaviour of the Four Age Groups

Across the Three Conditions

Condition	Age Group			
	5-6	7-8	9-10	13-14
Time[a]	90(3.6)	82(3.28)	106(4.24)	92(3.68)
Pencil[b]	12(48%)	19(76%)	25(100%)	24(96%)
Candy[c]	34(1.36)	46(1.84)	72(2.88)	106(4.24)

[a]Total number of periods of time volunteered; figure in parenthesis refers to the mean score.

[b]Total number of subjects picking up the pencils; figure in parenthesis refers to the percentage of subjects who helped.

[c]Total number of candy bars donated; figure in parenthesis refers to the mean score.

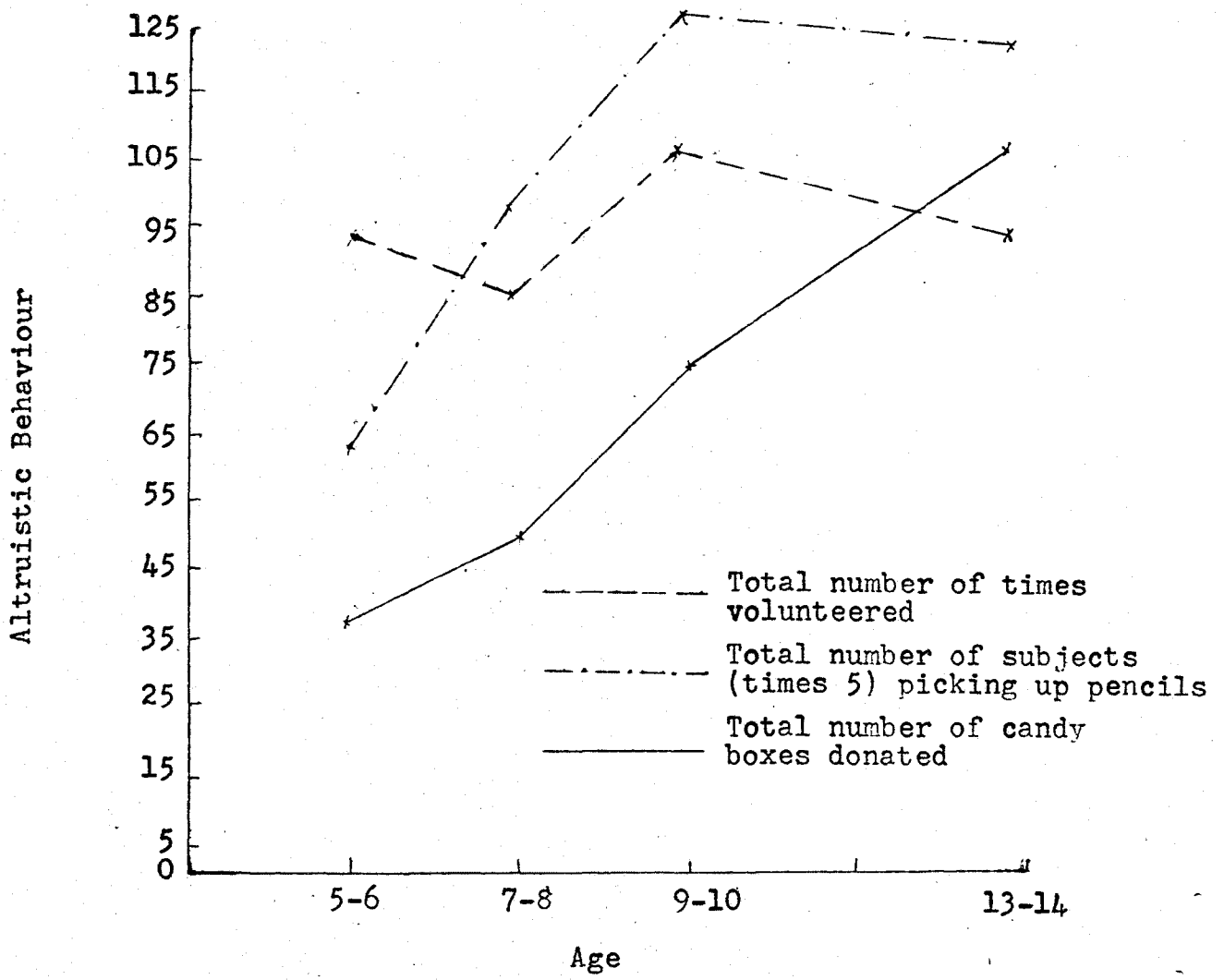

Figure 1. Total Altruistic Behaviour in the Three Conditions by Age Groups.

TABLE 4

Analysis of Variance of Altruistic Behaviour as Measured by Two Conditions (Time and Candy) across Four Age Groups

Source	SS	df	MS	F
Condition (A)	62.72	1	62.72	47.52*
Age (B)	81.04	3	27.01	20.46*
A X B	52.96	3	17.65	13.37*
Within cell	317.36	192	1.32	

*$p < .01$

Individual comparisons of the treatment means by the Newman-Keuls test indicated that in the Candy Condition (see Appendix E) there were significant differences between all age groups except between the 5-6 and 7-8 year olds. In the Time Condition (see Appendix F), however, the only significant difference was between the 7-8 and 9-10 year olds.[5]

The 2 X 3 (Condition X Age) analysis of variance on helping data, which excludes the data from the 7-8 year old group, is summarized in Table 5. Table 5 shows, as with the 2 X 4 analysis of variance, that Age, Condition, and the interaction between Age and Condition were significant factors.

Trend analysis of the simple effects of age also were computed. A test for linear trend of the effect of Age on the Time Condition was not significant ($F=.05$, $df=1, 144$). However, a test for linear trend of the effect of Age on the Candy Condition was highly significant ($F=65.73$, df , $p<.01$). Thus a linear relationship was found between Age and altruistic behaviour when altruism was operationalized as the donation of candy, but it was not found when the volunteering of time was used as the measure of altruism. However, a test for quadratic trend of the effect of Age on the Time Condition was marginally significant ($F=3.80$, $df=1, 144$, $p<.06$), whereas a test for quadratic trend of the effect of Age on the Candy Condition was not significant ($F=.07$, $df=1, 144$).

[5]The results are significant at the .01 level as reported in Appendix E. Analysis using the .05 level also was done and indicated that no other difference attained significance.

TABLE 5

Analysis of Variance of Altruistic Behaviour as Measured by Two Conditions (Time and Candy) across Three Age Groups

Source	SS	df	MS	F
Condition (A)	38.40	1	38. 40	24.30*
Age (B)	58.61	2	29.31	18.55*
A X B	51.26	2	25.63	16.22*
Within cell	228.96	144	1.58	

*$p < .01$

These analyses confirm the impression gained by inspection of Figure 1 that the donation of candies rises in a linear fashion and that the volunteering of free time has a quadratic function with the peak being at the 9-10 age level.

The chi square analyses of the data from the Pencil Condition are summarized in Table 8. First it should be noted that only one subject helped pick up the pencils after the experimenter began to pick them up. All other subjects (see Appendix D) either picked up all the pencils or none of them. For the chi square analyses the behaviour of this one subject was classified as helping.

As the overall chi square in Table 8 indicates, there was a highly significant association between help and age. The individual comparisons show that there were significant differences between all the age groups except between the 5-6 and 7-8 year olds, the 7-8 and 13-14 year olds, and the 9-10 and 13-14 year olds. Note that the difference between the two youngest groups did attain a marginal level of significance. In addition, a significant difference was found when the data from the two younger groups were combined and compared with the combined data of the two older groups. This pattern of results lends support to the impression gained by inspection on Figure 1 that help in the Pencil Condition increased gradually from 5-6 through 7-8 to 9-10 and level off between 9-10 and 13-14.

TABLE 6

Summary of Chi Squares on Help in the Pencil Condition

Age Groups	df	x^2
Overall	3	24.10***
5-6 vs 7-8	1	3.06*
5-6 vs 9-10	1	14.90***
5-6 vs 13-14	1	12.01***
7-8 vs 9-10	1	4.73*
7-8 vs 13-14	1	2.65
9-10 vs 13-14	1	0
5-6 + 7-8 vs 9-10 + 13-14	1	18.06***

*p<.10

**p<.05

***p<.001

Table 7 summarizes the Pearson product-moment correlation co-efficients computed for each age group between the Time Condition and the Candy Condition and the point biserial correlation for each age group between the Time and Pencil Conditions and the Pencil and Candy Conditions. None of these correlations is significant.

TABLE 7

Correlations for each Age Group between the Three Measures of Altruistic Behaviour

Age groups	Altruistic measure	Altruistic measure (1)	(2)	(3)
5-6	(1)Time		.22	-.19
	(2)Pencil			-.17
	(3)Candy			
7-8	(1)		.09	-.33
	(2)			.09
	(3)			
9-10	(1)		0	.05
	(2)			0
	(3)			
13-14	(1)		.04	-.10
	(2)			.06
	(3)			

Note.-- Correlations between Measures (1) and (3) are Pearson r, correlations between (1) and (2) and (2) and (3) are point biserial.

CHAPTER IV

DISCUSSION

The results of this experiment support the one hypothesis of the study: It was hypothesized that altruistic behaviour increases from age 5 to age 10. There was an increase in altruism between 5-6 and 9-10 on all three measures employed in the study. The findings, then, lend support to the conclusion of Krebs (1970) and Bryan and London (1970) that altruistic behaviour increases in the first decade of life.

A prediction was not made regarding the slope of the curve between 9-10 and 13-14 year olds. It was found that the function varied depending on the measure of altruism. In the Time Condition there was a decrease in altruistic behaviour from 9-10 to 13-14, in the Pencil Condition there was a leveling off, and in the Candy Condition there was an increase.

In the Time Condition, the only significant difference occurred between the 7-8 year olds and the 9-10 year olds, with the older subjects volunteering a greater number of free periods. The trend analysis of the data from the 5-6, 9-10, and 13-14 year old groups revealed a marginally significant quadratic trend, reflecting a pattern which is similar to the one found

by Staub and Feagens (1969) and Staub (1970) in their studies of children's willingness to help in an emergency situation. That is, in the present study and those by Staub, help gradually increased from 4-6 years to 9-10 years, but decreased from 9-10 years to 11-12 years.

It is important to note that of the three conditions, subjects in the Time Condition were exposed to the most pressure to conform. In this condition a direct verbal request was made by the experimenter, a male adult, and the subject had to make a response under adult surveillance. In contrast, in the Pencil Condition no direct request for help was made, and in the Candy Condition the request for help came from a female adult and the subject was led to believe that the degree to which he helped was not subject to adult surveillance. Perhaps 9-10 year olds are more susceptible to conformity pressures than either younger or older children. This interpretation would seem to fit with Bryan and London's (1970) suggestion that 9 and 10 year old children are at the height of the "good boy morality", having passed from the more egotistical phase of Kohlberg's (1964) Stage I to his Stage II where morality is determined more by social approval or disapproval. Thus, the younger children may have volunteered less time than the 9-10 year olds because they were more selfish and less concerned about adult approval, whereas older children in the process of entering Kohlberg's third stage, may have volunteered less time than the 9-10 year olds because of greater

independence and/or less concern about pleasing an adult. Another possible reason why the 13-14 year olds gave less time than the 9-10 year olds could be that time is more valuable to 13-14 year olds than it is to 9-10 year olds. The sacrifice of free time, which apparently has not been previously used as a measure of altruism, thus presents another incentive value problem. Another difficulty with the use of volunteering time as a measure of altruism concerns the ability of the younger children to conceptualize what "15 minutes of free time" means. In the present study an attempt was made to concretize time by demonstrating to the children what they would be doing during the 15 minutes.

In the Pencil Condition, there was a gradual increase in aiding responses from 5-6 years through 9-10 years. On the other hand, the 9-10 and 13-14 year old groups were practically identical, with all 25 subjects in the 9-10 year old group and 24 out of 25 subjects in the 13-14 year old group picking up the pencils.

The failure of slightly more than one half of the boys in Group 1 and of approximately one quarter of those in Group II to pick up the pencils can perhaps best be explained in terms of social learning. These boys probably have not yet learned what is expected in such a mild emergency situation, i.e., that they should help the other person, particularly if he is an adult. The almost total help received from Groups III and IV indicate that this helping norm is well learned by 9-10 years of age.

Another factor could be that the younger children who failed to help pick up the pencils were inhibited by fear or shyness in the presence of a strange adult. It did appear to the experimenter that this was a factor with some of the younger subjects. In the Pencil Condition, there was more ambiguity and fewer cues regarding the appropriate response (no verbal request was made) than in the other two conditions. It is possible that fear or shyness thus had more of an inhibiting effect in the Pencil Condition than in the other two conditions where verbal cues helped the subject to know what was expected of him.

Of the 100 subjects, 79 picked up the pencils immediately. Twenty did not pick up any pencils at all, and only one subject began to help pick up the pencils after the experimenter picked up one. Apparently modelling was not very effective in this situation, contrary to what might be expected on the basis of Bandura and MacDonald's (1963) theorizing.

In the Candy Condition a linear increase in generosity occurred from the 5-6 year old group through the 13-14 year old group. This result is consistent with the findings of most previous studies of children between the ages of 4 and 10 which used the donation of candies as a measure of altruism (Bryan & London, 1970; Krebs, 1970).

However, there remains some doubt as to whether the incentive value of candy for children at the different ages was adequately controlled. The Object Preference Form was used as a measure of incentive value of candy. Perfect

matching of the group's candy preferences was impossible because there was a tendency to prefer candy more as age increased. From this it could be argued that altruism does increase between 5-6 and 13-14 since the older children, who expressed a greater liking for candy were, in fact, more generous in giving it away. However, it is more likely that the Object Preference Form was an invalid measure of incentive value. Certainly common sense suggests that younger children do value candies more than older children. Some of the comments of the children to the experimenter's assistant confirm this impression. It is likely that the fact that the older children preferred candy to the other items on the Object Preference Form resulted from their judging some of the other items (balloons, marbles, plastic whistle) as suitable only for little children and not for themselves. If more items like the ruler (which did appeal more to the older boys) had been included on the Object Preference Form, the older subjects may have expressed a lower preference for candy.

Therefore, the large linear increase in donation of candies with increasing age should be interpreted with some caution. It is probable that it is due, at least in part, to differences in the incentive value of candies.

None of the Pearson product moment correlations or point biserial correlations between the three Conditions were significant. It appears then, that there was little correlation between the subjects' performance in the three different conditions. These results support Bond's (1968) finding that

altruism is a multidimensional concept and indicate the need for a variety of measures in studies of the relationship between age and altruism.

Conclusion

The purpose of the present study was to extend the analysis of the relationship between age and altruism in children by attempting to overcome some of the limitations of previous research such as the failure to control for changes in incentive value across age groups, the paucity of measures of altruistic behaviour, and the restricted age range.

In this study an attempt was made to control for the age related change in the incentive value of candy, but it is unlikely that the attempt was successful. While no attempt was made to control for the incentive value of free time, such a control is recommended.

Apparently for the first time in a study of altruism in children, three different behavioural measures were employed. Their use, and the results of the study, add support to previous research which found an increase in altruism up to the age of 10. The different patterns which the three measures produced between the ages of 9-10 and 13-14 make caution necessary in the interpretation of previous studies of children older than 10 which used only one measure of altruistic behaviour.

The age range of the present study (5-14) was greater than in most previous studies. The disadvantage of such a large

range is the problem of incentive value. The advantage is the wider picture of the development of altruism in children. Future studies of altruism in children could well concentrate on the higher ages since the increase in altruistic behaviour in the first decade of life seems fairly well substantiated.

APPENDIX A

Object Preference Form

Name_____ Teacher_____

Age _____ Grade _____

☐ A plastic ruler

☐ Five colored balloons

☐ A ten cent chocolate bar

☐ A plastic whistle

☐ A package of 20 marbles

APPENDIX B

Mean Candy Preference Scores, Social Class and I.Q. of the Four Age Groups

Age Group	Candy Preference	Social Class[a]	I.Q.
5-6	3.24	30.0	104.60
7-8	2.88	34.0	102.36
9-10	2.32	31.81	107.80
13-14	2.28	33.71	105.04

[a]Information regarding the occupation of the parents of some of the subjects was unavailable.

APPENDIX C

Analysis of Variance of Candy Preference Scores

Source	SS	df	MS	F
Age	16.08	3	5.36	2.56*
Experimental error	200.68	96	2.09	-

*$p < .10$

APPENDIX D

RAW DATA BY AGE GROUP

APPENDIX D

Raw Data by Age Group

5-6 Year olds

Subject	Age	Candy Preference	IQ	Socioeconomic Status[a]	Periods of Time Volunteered	Pencil Condition[b]	Boxes of Candy Donated
1	5	5	105	44	5	H	0
2	5	3	111	87	3	H	0
3	5	3	120	44	2	NH	0
4	5	1	100	16	0	NH	3
5	5	5	107	30	5	H	2
6	5	4	95	25	2	NH	2
7	5	2	110	16	5	H	3
8	5	5	110	32	5	H	2
9	5	5	115	24	1	H	3
10	5	5	90	16	2	M	3
11	5	4	98	44	2	NH	3
12	5	1	113	48	5	H	2
13	5	4	104	16	5	NH	0
14	6	5	110	11	5	NH	2
15	6	1	97	17	2	NH	0
16	6	1	89	35	5	H	0
17	6	4	107	16	4	NH	3
18	6	4	111	16	5	H	0
19	6	1	93	47	1	NH	0
20	6	1	100	44	4	NH	0
21	6	4	80	9	5	NH	1
22	6	2	124	72	2	NH	1
23	6	3	115	-	5	NH	0
24	6	2	103	16	5	H	2
25	6	5	108	16	5	H	2

7-8 Year olds

Subject	Age	Candy Preference	IQ	Socioeconomic Status[a]	Periods of Time Volunteered	Pencil Condition[b]	Boxes of Candy Donated
1	7	2	98	72	0	H	0
2	7	3	103	-	5	H	3
3	7	5	121	45	3	H	2
4	7	2	90	16	0	H	3
5	7	2	111	25	2	H	3
6	7	4	114	35	4	H	0
7	7	4	112	16	1	H	2
8	7	1	105	33	5	NH	1
9	7	1	95	16	5	H	2
10	7	3	108	78	5	NH	1
11	7	4	93	44	5	H	1
12	7	1	85	49	5	H	1
13	7	1	99	-	5	H	2
14	8	5	111	44	2	H	3
15	8	4	115	8	3	H	1
16	8	5	102	44	4	H	2
17	8	2	95	16	2	NH	3
18	8	5	89	49	2	H	2
19	8	1	100	87	3	H	3
20	8	4	107	34	5	H	1
21	8	3	90	31	2	H	2
22	8	4	97	16	2	NH	3
23	8	1	118	67	5	NH	1
24	8	4	98	8	3	NH	3
25	8	1	103	16	4	H	1

9-10 Year olds

Subject	Age	Candy Preference	IQ	Socioeconomic Status[a]	Periods of Time Volunteered	Pencil Condition[b]	Boxes of Candy Donated
1	9	1	105	41	3	H	4
2	9	5	117	19	2	H	1
3	9	1	96	16	5	H	1
4	9	5	115	92	5	H	4
5	9	2	100	39	4	H	5
6	9	4	120	84	5	H	2
7	9	1	115	78	2	H	2
8	9	4	90	9	3	H	3
9	9	1	115	9	5	H	2
10	9	5	101	-	4	H	1
11	9	4	98	10	5	H	4
12	9	1	115	11	5	H	2
13	9	1	103	16	3	H	3
14	10	1	115	11	5	H	3
15	10	2	125	25	5	H	4
16	10	1	98	39	3	H	3
17	10	1	97	32	5	H	2
18	10	1	122	11	5	H	2
19	10	2	95	43	5	H	4
20	10	3	92	67	3	H	3
21	10	4	117	37	5	H	4
22	10	4	110	16	5	H	1
23	10	2	120	41	5	H	3
24	10	1	110	26	2	H	4
25	10	1	103	-	5	H	5

13-14 Year olds

Subject	Age	Candy Preference	IQ	Socioeconomic Status[a]	Periods of Time Volunteered	Pencil Condition[b]	Boxes of Candy Donated
1	13	4	108	37	4	H	5
2	13	2	103	72	3	H	5
3	13	3	111	29	1	H	4
4	13	4	98	17	5	H	5
5	13	2	100	22	5	H	3
6	13	4	115	9	5	H	2
7	13	2	123	34	3	H	4
8	13	1	104	14	5	H	4
9	13	1	95	62	2	H	5
10	13	2	117	20	2	H	4
11	13	1	93	-	5	H	3
12	13	2	89	16	4	H	3
13	13	1	127	15	3	H	3
14	14	2	102	59	4	H	5
15	14	1	110	15	3	H	5
16	14	3	88	32	3	H	4
17	14	1	114	-	5	H	5
18	14	4	120	72	5	H	5
19	14	1	97	38	4	NH	4
20	14	2	85	50	3	H	3
21	14	3	114	77	4	H	5
22	14	1	107	51	5	H	5
23	14	5	107	11	5	H	5
24	14	3	104	16	4	H	5
25	14	2	110	16	0	H	5

[a] Information regarding the occupation of the parents of some subjects was unavailable.

[b] H signifies that the subject picked up all of the pencils.
NH signifies that the subject did not pick up any pencils.
M signifies that the subject helped to pick up the pencils after the experimenter started to pick them up.

APPENDIX E

Comparisons between Means for the Candy Condition

$q_{.99}(r,144)$	3.70	4.20	4.50
$s_{\bar{x}}q_{.99}(r,144)$	.85	.97	1.04

	5-6	7-8	9-10	13-14
5-6	-	.48	1.52*	2.88*
7-8	-	-	1.04*	2.40*
9-10	-	-	-	1.36*
13-14	-	-	-	-

*$p < .01$

APPENDIX F

Comparisons Between Means for the Time Condition

$q_{.95}(r,144)$	2.80	3.36	3.69
$s_{\bar{x}}q_{.95}(r,144)$	.64	.66	.85

-	7-8	5-6	13-14	9-10
7-8	-	.32	.40	.96*
5-6	-	-	.08	.64
13-14	-	-	-	.56
9-10	-	-	-	-

*$p < .05$

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